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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,028	09/11/2003	David M. Pepper	B-4077 618504-4	6773

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EXAMINER

THOMAS, BRANDI N

ART UNIT	PAPER NUMBER
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2873

DATE MAILED: 05/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/661,028

Applicant(s)

PEPPER ET AL.

Examiner

Brandi N. Thomas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 3,4,8,12-21 and 27-32 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 22-26 is/are allowed.
- 6) ☒ Claim(s) 1,2,5-7 and 9-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/14/03;5/17/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: Detailed Action.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of an optical retro reflective apparatus in the reply filed on 3/3/06 is acknowledged. The traversal is on the ground(s) there is no serious burden in examining 27 claims, all pertaining to the same technological class 359 and that the Examiner had ample time to examine all those claiming on the merits. This is not found persuasive because regarding group I, claims 1, 2, 5, 6, 7, 9-11, and 22-26, class 359/169 (retroreflection), contain a Fabry Perot structure and a MEMS device; group II, claims 12, 13, and 15-21, class 359/212 (reflective type moving element), contain the method of retroreflecting and modulating an optical beam; and group II, claims 27 and 29-32, class 359/170 (refroreflection), contain a retroreflector comprising a retroreflector comprising a mirrored surfaces is in a first light reflecting mode and wherein the beam of light is not retro-reflected by the retroreflector when at least one of said mirrored surfaces is in a second light reflecting mode.

The requirement is still deemed proper and is therefore made FINAL.

1. Claims 3, 4, 8, 12-21, and 27-32 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 3/3/06.

### ***Information Disclosure Statement***

2. Acknowledgement is made of receipt of Information Disclosure Statement(s) (PTO-1449) filed 11/14/03 and 5/17/04. An initialed copy is attached to this Office Action.

*Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 5-7, and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Sayyah et al. (US 2004/0130769 A1).

Regarding claim 1, Sayyah et al. discloses, in figures 1a, 1b, and 3, an optical retro-reflective apparatus with modulation capability comprising: a retro-reflecting Fabry-perot structure (12) including a pair of reflective surfaces (121 and 122) (section 0054); and a micromechanical device (figure 3) for moving at least one of the reflective surfaces (121 and 122) of said pair of reflective surfaces relative to another one of the reflective surfaces of said pair of reflective surfaces (section 0054 and 0070) a distance which causes the pair of the reflective surfaces to switch between a reflective mode of operation and a transmissive mode of operation (section 0014).

Regarding claim 2, Sayyah et al. discloses, in figures 1a, 1b, and 3, an optical retro-reflective apparatus with modulation capability, wherein the retro-reflecting structure (12) includes a corner cube arrangement with the pair of reflective surfaces (121 and 122) forming at least one angled reflecting surface of the corner cube arrangement and another reflecting surface

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forming another angled reflecting surface of the corner cube arrangement (sections 0025 and 0101).

Regarding claim 5, Sayyah et al. discloses, in figures 1a, 1b, and 3, an optical retro-reflective apparatus with modulation capability, wherein the micromechanical device is a MEM device made using photolithographic techniques (section 0015).

Regarding claim 6, Sayyah et al. discloses, in figures 1a, 1b, and 3, an optical retro-reflective apparatus for modulating an optical beam, the apparatus comprising: a retro-reflecting structure (12) including a substrate (120) and a moveable grating structure (14) (sections 0051 and 0052); and a micromechanical device for moving the moveable grating structure (14) relative to the substrate (120) to cause the retro-reflecting structure to switch between a retro-reflective mode of operation and a non-retro-reflective mode of operation (section 0014), the micromechanical device being responsive to a signal to impart modulation to an optical beam which is retro-reflected from the retro-reflecting structure (sections 0060 and 0060).

Regarding claim 7, Sayyah et al. discloses, in figures 1a, 1b, and 3, an optical retro-reflective apparatus for modulating an optical beam, wherein the retro-reflecting structure (12) includes a corner cube arrangement with said substrate (120) and moveable grating structure (14) forming at least a portion of one reflecting surface (121 and 122) of the corner cube arrangement and at least another reflecting surface (121 and 122) forming another reflecting surface of the corner cube arrangement (sections 0025 and 0101).

Regarding claim 9, Sayyah et al. discloses, in figures 1a, 1b, and 3, an optical retro-reflective apparatus for modulating an optical beam, wherein said one reflecting surface (121 and

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122) of said corner cube arrangement is pixelated by a plurality of moveable grating structures (14) (sections 0052 and 0052).

*Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sayyah et al. (US 2004/0130769 A1) as applied to claim 6 above, and further in view of Tsukiji et al. (5066130).

Regarding claim 10, Sayyah et al. discloses, in figures 1a, 1b, and 3, an optical retro-reflective apparatus for modulating an optical beam but does not specifically disclose wherein the gratings of one moveable grating structure of said plurality of moveable grating structures is rotated about a central axis thereof related to neighboring moveable grating structures. Tsukiji et al. discloses, in figure 1, wherein the gratings of one moveable grating structure of said plurality of moveable grating structures is rotated about a central axis thereof related to neighboring moveable grating structures col. 3, lines 4-26). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the device of Sayyah et al. with the grating of Tsukiji et al. for the purpose of diffracting positive and negative mth-order diffractions.

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Regarding claim 11, Sayyah et al. discloses, in figures 1a, 1b, and 3, an optical retro-reflective apparatus for modulating an optical beam, wherein at least another reflecting surface (121 and 122) has a moveable grating structure (14) associated therewith which is responsive to a signal to impart modulation to an optical beam which is retro-reflected from the retro-reflecting structure (sections 0060 and 0060).

*Allowable Subject Matter*

7. Claims 22-26 are allowed.
8. The prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the independent claim(s), in such a manner that a rejection under 35 U.S.C. 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in claim(s) 22, wherein the claimed invention comprises, in claim 22, a moveable optical element having a first position in which the retro-reflecting structure retro-reflects the optical beam and having a second position in which the retro-reflecting structure does not retro-reflect the optical beam, the first and second positions being spaced by a distance less than a wavelength of the optical beam, as claimed.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandi N. Thomas whose telephone number is 571-272-2341. The examiner can normally be reached on 7- 4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Mack can be reached on 571-272-2333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BNT  
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May 2, 2006

  
RICKY MACK  
SUPERVISORY PATENT EXAMINER